PROPOSED PLAN FOR OPERABLE UNIT 1
PORTSMOUTH NAVAL SHIPYARD
KITTERY, MAINE

Introduction

This Proposed Plan summarizes the Navy's proposed remedial action for contaminated soil at Operable Unit (OU) 1 at Portsmouth Naval Shipyard (PNS) National Priorities List site in Kittery, Maine. OU1, also known as Site 10, is one of seven OUs at PNS. OU1 includes a former battery acid tank. This Proposed Plan recommends removal of soil in a portion of OU1 that is contaminated with lead at concentrations greater than the selected cleanup levels, establishment of land use controls (LUCs) to ensure that the site is restricted to industrial use, and groundwater monitoring to confirm that groundwater has not been adversely impacted.

This Proposed Plan presents key information from the Remedial Investigation (RI) Report and Feasibility Study (FS) Report for OU1. These documents are available in the Information Repositories at the locations identified on page 14. This Proposed Plan provides basic background information on OU1, describes the remedial options that were considered, identifies the Navy's preferred alternative for remedial action, and explains the rationale for proposing the preferred alternative. The Proposed Plan also provides information supporting the proposed remedial action at OU1 and provides an opportunity for public review and comment on the proposed remedial action. OU1 is currently being addressed at PNS as part of the Navy's Installation Restoration Program (IRP). The goal of the IRP is to identify, assess, characterize, and cleanup or control contamination from past hazardous waste disposal operations at CERCLA/Superfund sites. The Navy is the lead agency at PNS, and the United States Environmental Protection Agency (USEPA) provides primary regulatory oversight. The Maine Department of Environmental Protection (MEDEP) provides regulatory support. The Proposed Plan was developed with support from USEPA and MEDEP and with input from the PNS Restoration Advisory Board.

Learn More about the Proposed Plan

The Navy invites you to attend an Informational Open House to find out about the proposed cleanup plan and how it compares with other cleanup options for the site. The Navy will respond to your questions and concerns about the proposed cleanup and how it may affect you. However, if you want to make a formal comment for the record, you must either submit it in writing or attend the formal Public Hearing.

Informational Open House
Meeting: 6:00 to 8:00 pm
Date: June 30, 2010
Location: Kittery Town Hall, Kittery, Maine

What Do You Think?

The Navy is accepting public comments on this Proposed Plan from June 17 to July 16, 2010. You do not have to be a technical expert to comment. If you have a comment or concern, the Navy wants to hear from you before making a final decision on the proposed remedial action.

To provide formal comments, you may:

1. Offer oral comments during the Public Hearing on June 30, 2010 (see page 14 for details about providing formal comments).

2. Provide written comments at the Informational Open House, Public Hearing, or by fax or mail. Comments must be postmarked no later than July 16, 2010. Address comments to:

Ms. Danna Eddy
Public Affairs Office (Code 100PAO)
Portsmouth Naval Shipyard
Portsmouth, NH 03804-5000

Fax: (207) 438-1266

Public Hearing
Meeting: 8:00 pm
Date: June 30, 2010
Location: Kittery Town Hall, Kittery, Maine

For further information regarding the Informational Open House, and Public Hearing, contact Ms. Danna Eddy at (207) 438-1140

Site Background

PNS is located on an island in the Piscataqua River, referred to on National Oceanic and Atmospheric Administration nautical charts as Seavey Island, with the eastern tip given the name Jamaica Island. PNS is located at the mouth to the Great Bay Estuary (commonly referred to as Portsmouth Harbor). PNS's ship-building history dates back to the 1800s, and PNS has been engaged in the construction, conversion, overhaul, and repair of submarines for the Navy since 1917. Figure 1 shows the layout of PNS.

OU1 is a small peninsula located in the Controlled Industrial Area near the southern shore of PNS. Building 238 is located within OU1 on the southernmost extent of Floyd Street. The site is currently and has historically been located within an industrial area. The site is located on fill material that was placed prior to the 1920s. This fill material extended the previous shoreline in the area to its current limits. Building 238 was constructed in 1955 and was used for battery recharging operations that previously resulted in releases of hazardous materials. Currently, the building consists mostly of office space; some minor battery recharging work is still performed in the building, but the current recharging process does not generate chemical waste. Figure 1 shows the general location of OU1 at PNS, and Figure 2 shows the layout of the OU1 area.

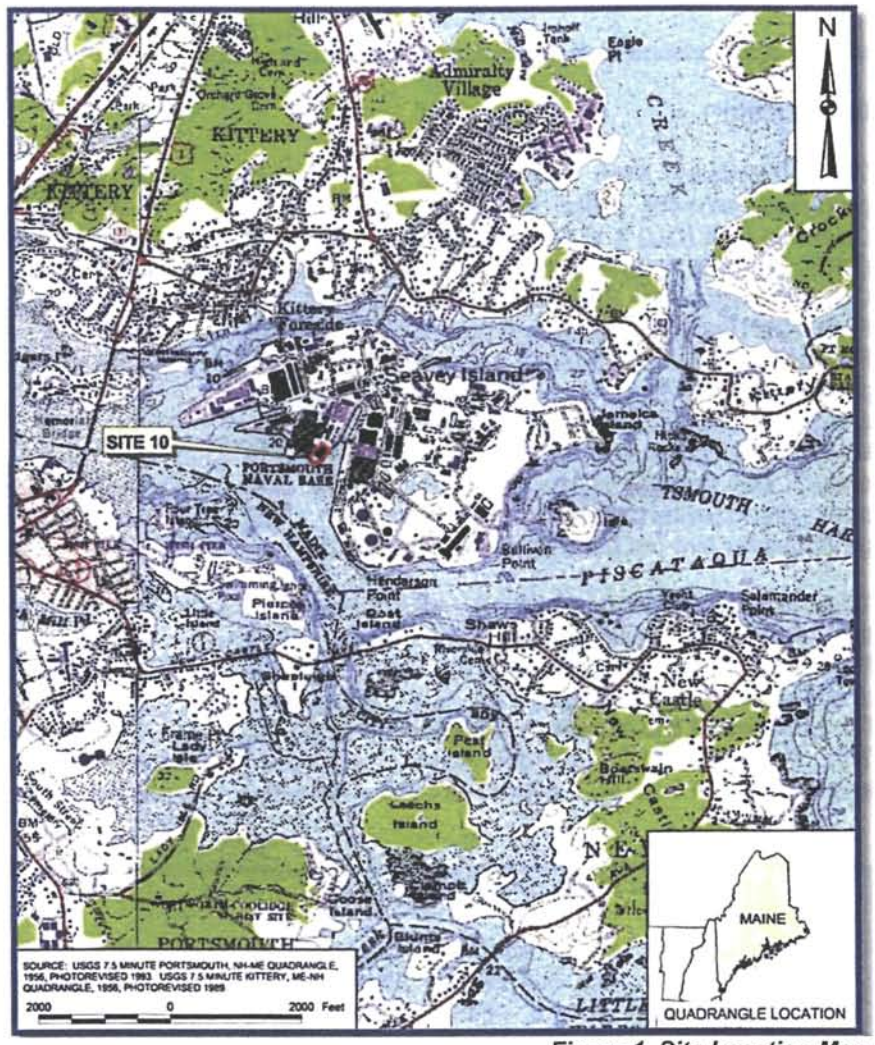

Figure 1. Site Location Map

As part of historical battery recharging operations in Building 238, large lead-acid batteries were drained inside the building. Until 1974, waste sulfuric acid and lead-bearing sludge were discharged via an underground 15-inch-diameter cast iron pipe (see Figure 2) directly to the Piscataqua River through an industrial waste outfall located in the western portion of Berth 4. From 1974 to 1984, the acidic discharges from battery operations in Building 238 were directed into a lead-acid drain pipeline and temporarily stored in an underground storage tank (UST) (Battery Acid Tank No. 24) outside the building. The acid flowed from a sump through a drain in the crawl space under Building 238, under the earthen floor, and exited the building foundation through a polyvinyl chloride pipe connected to the UST. A leak was discovered in the UST in 1984 and use of the tank, sump and drain was discontinued. The UST and surrounding soil were removed as part of the MEDEP-supervised tank closure in 1986. In 1998 it was found that the drain in the crawl space also leaked while in use.

Site investigations at OU1 were conducted in 1991, 1998, 2001, and 2006 to determine whether residual contamination from site operations was present in soil and groundwater. The data from these environmental investigations were used in the OU1 RI Report to determine the nature and extent of contamination and to evaluate potential risks posed by contaminants at the site to humans. Details of these investigations are included in the OU1 RI Report (TtNUS, July 2007).

OU1 was initially investigated in 1991 as part of the Resource Conservation and Recovery Act Facility Investigation and again in 1998 as part of the Field Investigation of Site 10. Evaluation of the results of these investigations indicated that further investigation was required to determine the nature and extent of residual inorganic (metals) contamination in soil and groundwater so that associated site risks could be evaluated. No organic contamination associated with the site was found.

An additional investigation of OU1 was conducted in 2001 and the risk evaluation showed that lead was the primary site contaminant. Elevated concentrations of lead in the soil were detected in the crawl space under Building 238 and near the drain line to the UST. Further investigation of the extent of high-level lead contamination was recommended before completing the RI Report. Additional investigation of lead concentrations in groundwater was also recommended to confirm that migration of lead in groundwater to the offshore was not a concern for the site.

The focus of the 2006 Data Gap Investigation was to better delineate the nature and extent of high-level lead contamination in soil from past battery operations and to collect additional information to evaluate the potential for lead migration from onshore soil to the offshore area.

Site Characteristics

OU1 is located within the Controlled Industrial Area of PNS, where much of the facility's submarine maintenance activities are conducted. The area is relatively flat, with elevations ranging from 104 feet along Berth 4 to 107 feet north of Building 238. The area of OU1 not occupied by Building 238, including the battery acid tank, is covered by asphalt paving. A loading dock is located on the southern and eastern sides of Building 238. The Piscataqua River forms the eastern, southern, and a portion of the western boundary of the site. The OU1 shoreline along the Piscataqua River from the west to the southeast is bounded by a quay wall of granite blocks. Berths 4 and 5 are located south and east of Building 238, respectively. Barges are commonly docked at these berths. Buildings 303 and 178 are located west of the site, and additional operational buildings are located north of the site. Surface drainage is via storm drains that discharge to storm water outfalls into the Piscataqua River. The area south of Building 238 is within the 100-year flood zone (which is at an approximate elevation of 105 feet).

The crawl space beneath Building 238 has an earthen floor and is present beneath the majority of the building and the loading dock. Current and abandoned utility lines, piping, and building supports are

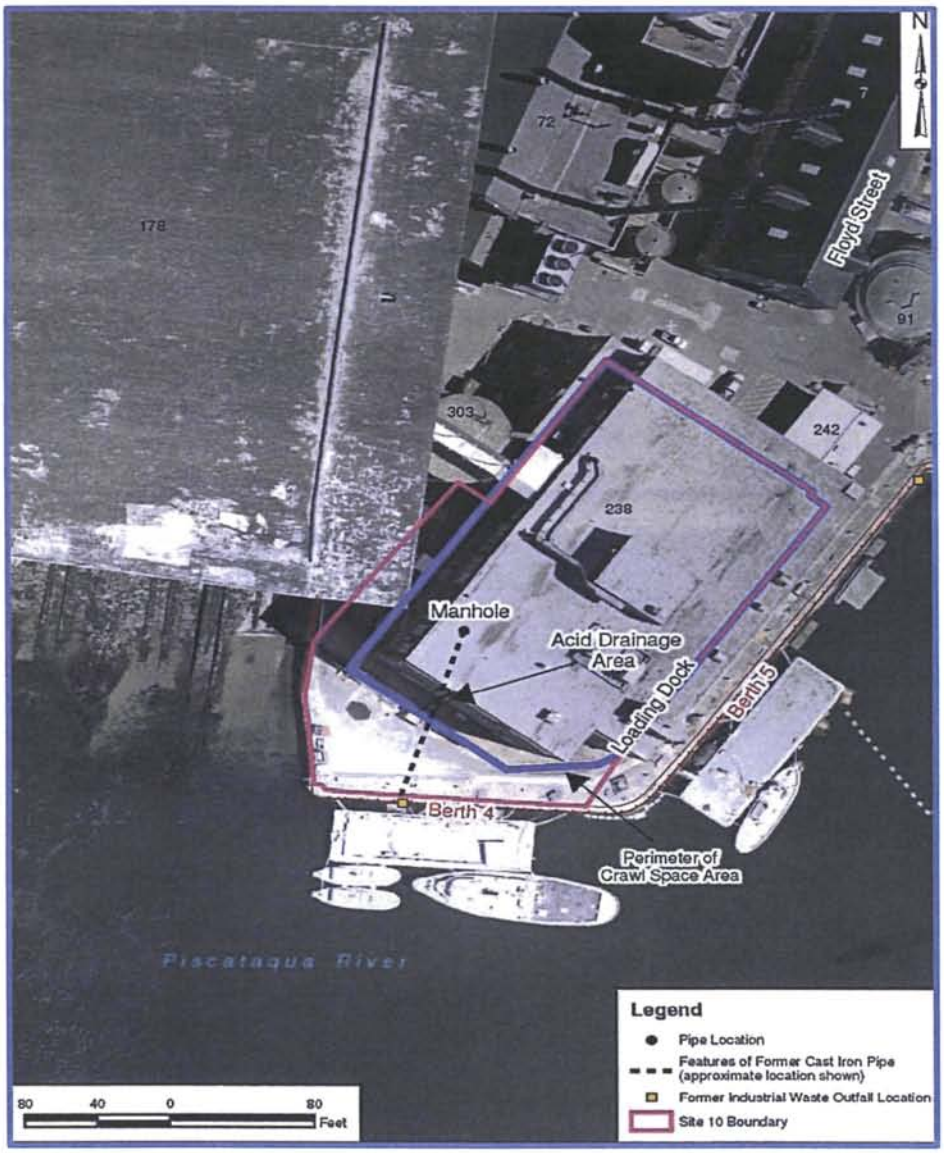

Figure 2. Site Features

present within the crawl space. Access to the crawl space for construction or utility repair is through six openings (windows) installed for ventilation (two on southern wall, two on eastern wall, and one each on the northern and western walls). The walls and roof of the crawl space consist of poured concrete with large support beams (building foundations and footers). The headroom beneath the loading dock varies from approximately 8 feet to approximately 4 feet. The headroom beneath the support structures (building foundations and footers) that traverse the underside of the Building 238 floor is less than 3 feet.

Figure 3 shows the layout of features associated with the site. Approximately 20 feet from the southern end of the building, a large sump (with a rectangular cross section of approximately 16 feet by 20 feet) with slanted sides extends beneath the floor of Building 238 into the crawl space. A drain emerges from the center of the bottom of the sump, joins another drain emerging from the building floor outside the sump, and enters the earthen floor. The drain line, previously connected to the former UST south of Building 238, enters the ground within a channel depression. The depression is approximately 5 feet wide and extends from the area of the sump to the southern wall of the crawl space. The acid sump and drain lines within the crawl space of Building 238 and the former UST south of Building 238 were part of past battery operations at the site.

The fill material beneath OU1 (under the asphalt outside Building 238 and within the crawl space under Building 238) ranges in thickness from less than 10 feet in the northern portion of the OU to over 45 feet near the river. The fill consists of sandy and/or silty soil with gravel, rocks ranging from several inches to over 2 feet in length, and building materials (e.g., fragments of red bricks, wood, metal, etc.). The fill outside Building 238 consists of loose soil and rocks at the surface and highly compacted soil and rock to 6 to 8 feet below ground surface (bgs) (at an elevation of 97 to 99 feet). Below 6 to 8 feet bgs, the fill outside Building 238 consisted of rock with little to no soil. Because of the confined entry to and limited space within the crawl space under Building 238, borings were not drilled under the building and soil sampling was conducted using hand tools. The top 3 to 6 inches bgs in the crawl space consisted of loose soil and rocks. Beneath this, the fill material consisted of highly compacted soil and rocks. Deeper than 2 to 3 feet bgs (below an elevation of 97 to 98 feet) in the crawl space, the fill material consisted of rocks with little to no soil.

Groundwater at the site is tidally influenced and is brackish or saline. The ground surface elevation within the crawl space under Building 238 is approximately 100 feet, which is at the high tide level. During soil sampling in the crawl space beneath Building 238, it was observed that at tide levels greater than mean high tide, groundwater completely saturates and covers the earthen floor of the crawl space. Based on staining on the walls of the crawl space, water can reach approximately 1 to 2 feet above the earthen floor at high-high tide levels.

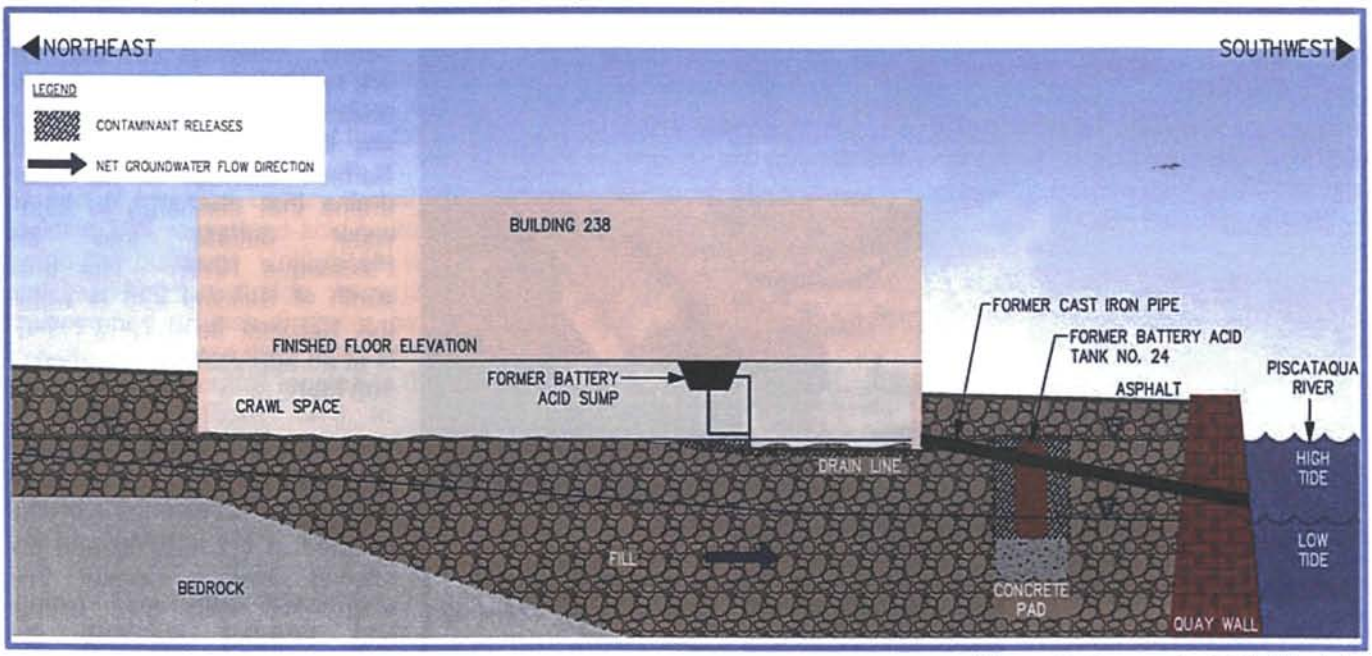

Figure 3. Conceptual Site Model

Nature and Extent of Contamination

As determined in the OU1 RI Report, the primary chemical associated with CERCLA releases at OU1 is lead. Prior to 1984, pipelines and the former UST associated with battery recharging operations within Building 238 apparently leaked, resulting in the release of battery acid containing lead to the subsurface soil (tidally saturated zone) of the site.

Based on the distribution of lead concentrations in soil, the highest lead concentrations [greater than 8,000 parts per million (ppm)] occur in soil in the tidally saturated zone near the former drain line within the Building 238 crawl space) and in one location near the former UST south of Building 238. Lead concentrations between 2,000 and 8,000 ppm were generally found near these release areas in the tidally saturated zone. Away from these release areas, lead concentrations typically range from 0 to 2,000 ppm. In addition, lead concentrations less than 2,000 ppm were detected in the unsaturated zone, which would not have been impacted by site releases. Historical filling of the area (from approximately 1826 to 1915) and the long history of industrial use of the area are possible sources of the lead in the unsaturated zone

Lead concentrations in groundwater (total and dissolved) are low (generally less than 40 parts per billion) and do not indicate that lead from soil is leaching from the soil to the groundwater at the site at concentrations that would adversely impact human health or the environment. In addition, the RI Report indicated that groundwater migration to the offshore areas would not have any environmental impacts on these offshore areas.

Scope and Role of Response Action

The Proposed Plan discusses four possible alternatives for addressing soil contaminated with lead within OU1. OU1 does not include the adjacent offshore area, which is part of OU4. Contaminated sediment in the Piscataqua River resulting from past releases of hazardous materials from battery recharging operations is being addressed as part of remedial activities for OU4.

This Proposed Plan presents alternatives from which the Navy and USEPA, with MEDEP concurrence and after considering public input, will select a final remedy to prevent unacceptable risks to human health and the environment.

Summary of Site Risks

Risks for human health were calculated in the OU1 RI Report. Ecological risks were not calculated because the site is currently and has historically been located within an industrial area of PNS, and no ecological habitat has been identified at the site. Therefore, there are no onshore concerns for ecological risks from exposure to site contaminants. The potential for migration of site contaminants to adversely impact the offshore also was evaluated in the OU1 RI Report. Contaminated sediment in the Piscataqua River resulting from past releases of hazardous materials from battery recharging operations is being addressed as part of remedial activities for OU4.

A Human Health Risk Assessment (HHRA) was conducted for OU1 to determine the current and future effects of contaminants on human health. The HHRA provides an estimate of the likelihood of health problems occurring if cleanup action is not taken at the site. Under current land use conditions (industrial use), it was assumed that only construction workers (utility workers, maintenance workers, etc.) conducting periodic utility or building repair would be exposed to soil beneath the asphalt surrounding the building, to soil under the building, and to groundwater under the site during construction activities. Current occupational workers (production workers at Building 238) are not exposed to the soil or groundwater because of the asphalt covering the soil outside Building 238 and because the crawl space under Building 238 is not accessible to anyone other than construction workers.

The Navy also evaluated a hypothetical future scenario where the asphalt covering the soil outside Building 238 and/or Building 238 itself were removed or modified. Under these hypothetical future land use conditions, the Navy evaluated the risks of exposure of occupational workers, recreational users, and onsite residents to soil was evaluated. Even under these hypothetical conditions, however, it was not necessary to evaluate exposure to groundwater, because site groundwater is brackish/saline and not considered a potable water source.

The HHRA evaluated risks for exposure to surface soil (0 to 2 feet bgs) and subsurface soil above the water table (to a maximum depth of 6 feet bgs) outside the building and within the crawl space. Below 6 feet bgs outside the building there was little to no soil for exposure and is within the tidally

saturated zone so that typical construction work would not be conducted at this depth. Therefore, data for soil samples collected deeper than 6 feet bgs were not included in the human health risk calculations. In addition, the ground surface in the crawl space is approximately 5 feet lower than the ground surface outside the building; therefore, the depth to where little to no soil was found and the depth to the tidally saturated zone in the crawl space is actually shallower (to a depth of 2 to 3 feet bgs).

The HHRA provided the following results:

- Cancer risk estimates for current and reasonably anticipated future land use conditions were less than the CERCLA target risk range (one in a million to one in ten thousand incremental chance of developing cancer) and MEDEP guidelines (one in a hundred thousand incremental chance of developing cancer) because no carcinogenic chemicals exceeded risk-based screening levels.

- Noncancer risk estimates indicate that adverse noncarcinogenic health effects are possible only for the hypothetical future residential scenario for a child exposed to antimony in soil within the crawl space under Building 238.

- A quantitative evaluation of exposure to lead in soil indicated that under current and reasonably anticipated future site conditions, risks for construction worker exposure to lead in soil under Building 238 were unacceptable based on USEPA risk goals. However, risks under hypothetical future site conditions (in which the asphalt and/or Building 238 itself are removed or modified) were unacceptable for exposure to lead in soil under Building 238 for occupational workers, recreational users, and residential users, and for exposure to soil outside Building 238 for residential users.

- Exposure to groundwater and the migration of groundwater off-site (to the offshore area) did not pose unacceptable risks.

The Preferred Alternative identified in this Proposed Plan, or one of the other active measures considered in the Proposed Plan, is necessary to protect public health and welfare or the environmental from actual or threatened releases of hazardous substances into the environment.

Remedial Action Objectives

Remedial Action Objectives (RAOs) provide a general description of what the remedial action will accomplish and typically serve as the design basis for the cleanup alternatives. Based on the potential exposure pathways, receptors of concern, and potential future land use scenarios, the RAOs for OU1 are as follows:

- Prevent construction worker, occupational worker, and future potential recreational exposure through ingestion, dust inhalation, and dermal contact to unacceptable levels of lead-contaminated soil under Building 238.

- Prevent hypothetical future residential exposure through ingestion, dust inhalation, and dermal contact to unacceptable levels of lead-contaminated soil under and outside Building 238.

- Prevent hypothetical future residential exposure through ingestion, dust inhalation, and dermal contact to unacceptable levels of antimony-contaminated soil under Building 238.

Unacceptable levels are based on preliminary remediation goals (PRGs) established for the contaminants of concern and receptors. By cleaning up soil with concentrations greater than the PRGs in the identified remediation areas, the resulting soil concentrations, or exposure point concentrations, would be less than PRGs and would not pose unacceptable risks for construction workers, occupational workers, recreational users, or residential users. The depths of concern are based on the exposure depths evaluated in the HHRA; surface soil from 0 to 2 feet bgs and subsurface soil to the water table (approximately 6 feet bgs outside Building 238 and 3 feet bgs in the crawl space). The following PRGs were established for lead in soil within the crawl space under Building 238:

- Construction Worker – 2,000 ppm
- Occupational Worker – 1,600 ppm
- Adult Recreational User – 4,600 ppm
- Child or Adult Resident – 400 ppm (a PRG for antimony of 73 ppm was also established for future residents)

The following PRG for lead was established for the soil outside Building 238:

- Child or Adult Resident – 400 ppm

Risks to construction workers, occupational workers, and recreational users exposed to soil outside Building 238 are already acceptable; therefore, PRGs were not developed for these receptors for exposure to soil outside Building 238.

Summary of Remedial Alternatives

A summary of the remedial alternatives evaluated in the OU1 FS Report is presented below. With the exception of Alternative 1 (No Action), all alternatives would attain the RAOs.

Alternative 1 – No Action

Regulations governing the Superfund program require that the no-action alternative be evaluated to establish a baseline for comparison to other alternatives. Under this alternative, the Navy would take no action at the site to prevent exposure to contaminated soil.

Alternative 2 – LUCs and Monitoring

LUCs, implemented and maintained in accordance with a LUC Remedial Design (LUCRD), would be used to prevent unacceptable exposure to contaminated soil at OU1 by:

- Maintaining access restrictions and warning signs at the entrances to the crawl space under Building 238 to prevent unauthorized access by occupational or construction workers and to prevent hypothetical future recreational user access to the crawl space.
- Maintaining current site features including Building 238 and asphalt pavement and implementing restrictions to prevent hypothetical future residential site use unless additional action is conducted to prevent residential exposure to lead-contaminated soil at OU1 and antimony-contaminated soil within the crawl space under Building 238 at OU1.
- Maintaining requirements for management of excavated soil as part of any future construction activities at OU1.

The Navy would prepare and implement a LUCRD that would include the necessary LUCs, operation, maintenance and monitoring requirements, inspection requirements, and people and organizations responsible for implementation of LUCs. Groundwater monitoring would be conducted to provide additional confidence that lead contamination in the crawl space is not migrating to groundwater at unacceptable levels. A groundwater monitoring plan would be prepared that would provide the requirements for monitoring including sampling frequency, location of wells, action levels, and monitoring exit strategy. For cost estimating purposes in the FS, it was assumed that groundwater monitoring would be conducted annually for 30 years. Because contamination would remain in excess of levels that allow for unrestricted use and unlimited exposure, five-year reviews would be required under this alternative.

Alternative 3 – Surface Protection with LUCs and Monitoring

Alternative 3 consists of surface protection within an area of the crawl space, LUCs, and monitoring. Placement, inspection, and maintenance of a barrier composed of filter fabric and gravel over an area of approximately 400 square yards would be used to prevent direct exposure to soil around the drain line with lead concentrations greater than acceptable levels for construction workers who may access the crawl space for utility repairs under Building 238. If any activities need to be conducted within the covered area such that there is a potential for exposure to the lead-contaminated soil, appropriate health and safety requirements and replacement of the cover would be required. LUCs for recreational and residential users and management of excavated soil, groundwater monitoring, and five-year review requirements are the same as Alternative 2. LUCs for occupational and construction workers would include maintaining access restrictions and warning signs at the entrances to the crawl space under Building 238 to prevent unauthorized access that could disturb the barrier.

Alternative 4 – Limited Excavation and Disposal with LUCs

Alternative 4 consists of excavation and off-yard disposal of approximately 390 cubic yards of soil within an area of the crawl space, LUCs, and monitoring. Excavation and off-yard disposal of soil around the drain line within the crawl space under Building 238 with lead concentrations greater than acceptable levels for construction workers, occupational workers, and hypothetical future recreational users would be conducted. The excavated area would be backfilled with clean soil. Treatment of the excavated soil would be conduct as needed to meet disposal requirements.

Confirmation sampling would be conducted to determine whether excavation activities removed contaminated soil to meet PRGs for current land use. A remedial action design and work plan for soil excavation and backfill and for treatment and disposal of excavated soil would be prepared. Groundwater monitoring would be conducted to provide additional confidence that lead has not migrated to groundwater at unacceptable levels. Monitoring would be conducted until it has been decided that migration of lead contamination from soil would not result in groundwater concentrations greater than acceptable levels for human health and the environment. For costing for the FS, it was assumed that two annual rounds of post-remedial monitoring would be necessary to make the determination. A groundwater monitoring plan would be prepared that would provide the requirements for monitoring including frequency, location of wells, action levels, and monitoring exit strategy.

LUCs for residential users and management of excavated soil and five-year review requirements are the same as Alternative 2. LUCs for occupational and construction workers and recreational users would not be required.

Alternative 5 – Excavation and Disposal

Excavation and off-yard disposal of 6,300 cubic yards of soil within the crawl space and outside Building 238 (entire area within the site boundary) would be used to prevent unacceptable exposure to contaminated soil for all current and future receptors. Soil with lead concentrations greater than acceptable levels for a hypothetical future residential user at OU1 would be excavated. Confirmation samples would be collected to determine whether excavation activities removed the required contamination. The excavated areas would be backfilled with clean soil and the site restored. Treatment of the excavated soil would be conduct as

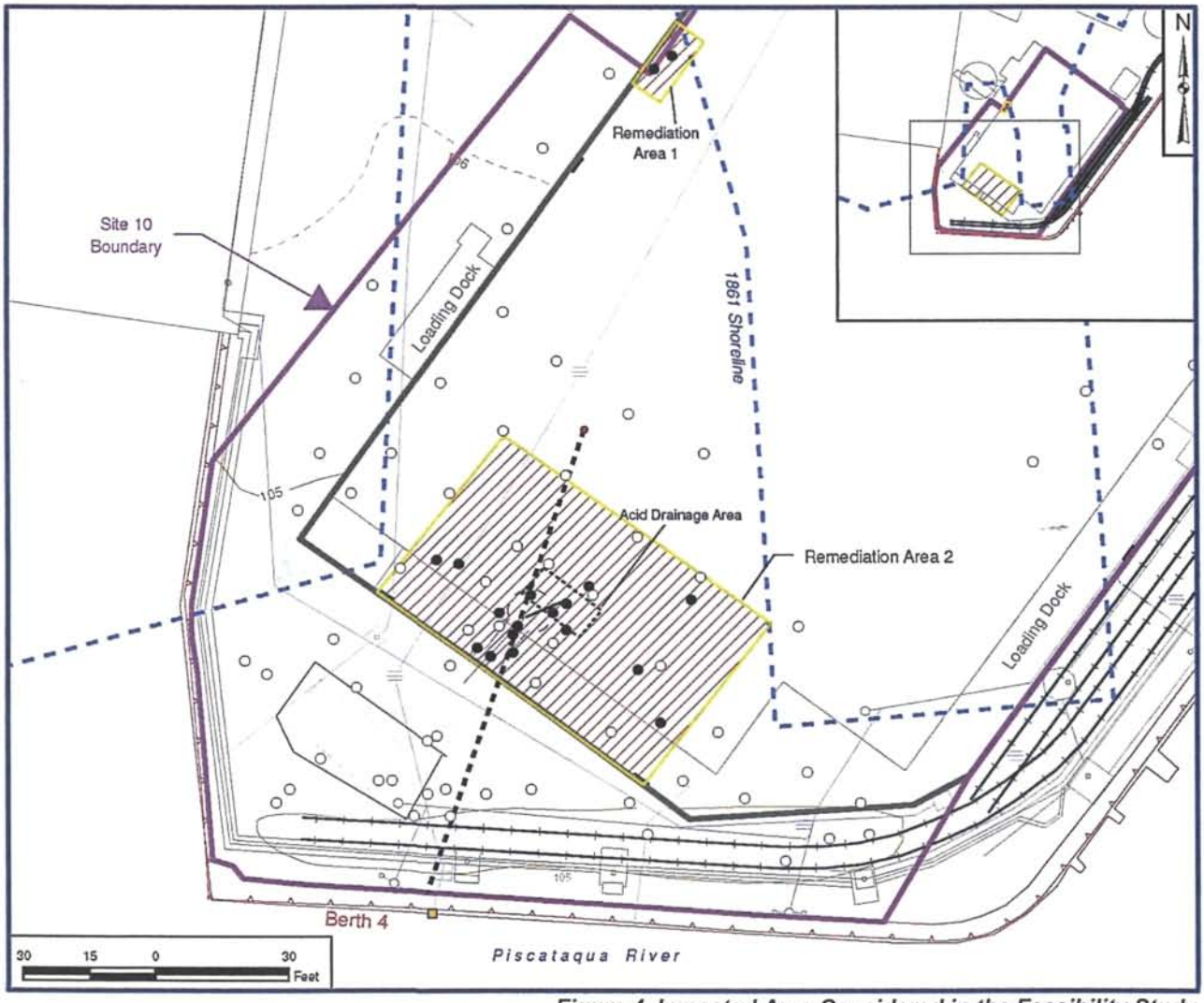

Figure 4. Impacted Area Considered in the Feasibility Study

needed to meet disposal requirements. After excavation and backfill, there would be no access restrictions at OU1; therefore, no LUCs would be required because all unacceptable risks would be addressed through removal and disposal of contaminated soil. Because no contamination would remain in excess of levels that allow for unrestricted use and unlimited exposure, five-year reviews would not be required under this alternative.

Evaluation of Alternatives

The following is a summary of the nine CERCLA-mandated criteria used to evaluate the remedial alternatives. The first two criteria are considered threshold criteria, and any alternative selected must meet them. The next five criteria are the balancing criteria. The Navy has already evaluated how well each of the cleanup alternatives meets these seven criteria as part of the OU1 FS Report. State (MEDEP) and community acceptance criteria (the last two of the nine CERCLA criteria) will be addressed after the public comment period on this Proposed Plan.

1. ***Overall Protection of Human Health and the Environment*** determines whether an alternative eliminates, reduces, or controls threats to public health and the environment through institutional controls, engineering controls, or treatment. The alternative's protection of human health as well as plant and animal life on and near the site is considered.

2. ***Compliance with Applicable or Relevant and Appropriate Requirements (ARARs)*** evaluates whether the alternative meets Federal and State environmental statutes, regulations, and other requirements that pertain to the site, or whether a waiver is justified.

3. ***Long-term Effectiveness and Permanence*** considers the ability of an alternative to maintain protection of human health and the environment over time.

4. ***Reduction of Toxicity, Mobility, or Volume of Contaminants through Treatment*** evaluates an alternative's use of treatment to reduce the harmful effects of principal contaminants, their ability to move in the environment, and the amount of contamination present.

5. ***Short-term Effectiveness*** considers the technical and administrative feasibility of implementing the alternative and the risks the alternative poses to workers, residents, and the environment during implementation.

6. ***Implementability*** considers the technical and administrative feasibility of implementing the alternative, including factors such as the relative availability of goods and services.

7. ***Cost*** includes estimated capital and annual operations and maintenance costs, as well as present worth cost. Present worth cost is the total cost of an alternative over the time in terms of today's dollar value. The alternative should provide the necessary protection for a reasonable cost. Cost estimates are expected to be accurate within a range of +50 to -30 percent.

8. ***State/Support Agency Acceptance*** considers whether the State agrees with the USEPA's analyses and recommendations, as described in the RI/FS and Proposed Plan.

9. ***Community Acceptance*** considers whether the local community agrees with the USEPA's analyses and preferred alternative. Comments received on the Proposed Plan are an important indicator of community acceptance.

The remedial alternatives in the OU1 FS Report were compared in detail using the criteria noted above, as summarized in Table 1. The following is a summary of this analysis:

Overall Protection of Human Health and the Environment:

All of the alternatives, with the exception of Alternative 1: No Action, would be protective of human health and the environment.

Compliance with ARARs:

All of the alternatives, with the exception of Alternative 1: No Action, would comply with ARARs.

Long-term Effectiveness and Permanence:

Alternatives 2 and 3, which do not involve any excavation of contaminated soil, have the least long-term effectiveness and permanence because they do not remove contaminated soil above industrial and non-industrial cleanup standards, and these alternatives rely on LUCs or surface barrier with LUCs to prevent exposure to contaminated soil. Alternative 4, which provides removal of

Summary of Comparative Analysis of Alternatives					
CERCLA Criterion	Alternative 1 No Action	Alternative 2 LUCs and Monitoring	Alternative 3 Surface Protection with LUCs and Monitoring	Alternative 4 Limited Excavation and Disposal with LUCs and Monitoring	Alternative 5 Excavation and Disposal
Overall Protection of Human Health and the Environment	○	◘	◘	●	●
Compliance with Applicable or Relevant and Appropriate Requirements (ARARs)	NA	●	●	●	●
Long-Term Effectiveness and Performance	○	◘	◘	●	●
Reduction of Toxicity, Mobility, and Volume of Contaminants through Treatment	○	○	○	Only if treatment is required for transportation or disposal	Only if treatment is required for transportation or disposal
Short-Term Effectiveness	NA	●	◘	◘	○
Implementability	NA	●	◘	◘	○
State Acceptance	TBD	TBD	TBD	TBD	TBD
Community Acceptance	TBD	TBD	TBD	TBD	TBD
Estimated Costs					
Capital Cost	$0	$171,798	$396,136	$1,083,306	$6,154,861
Annual					
(Years 1 - 2)	$0	$11,457	$11,457	$11,457	$0
(Years 3 - 30)	$0	$11,457	$11,457	$2,750	$0
(Years 5, 15, 25)	$0	$25,575	$25,575	$25,575	$0
(Years 10, 20, 30)	$0	$52,855	$52,855	$52,855	$0
30-Year NPW	**$0**	**$393,000**	**$618,000**	**$1,212,000**	**$6,155,000**

●- High ◘- Medium ○ - Low TBD – To be determined NA – Not applicable

contaminated soil above industrial standards, but leaves some contaminated soil in place above non-industrial standards and relies on maintenance of LUCs to prevent non-industrial site use, has greater long-term effectiveness and permanence than Alternatives 2 or 3. Alternative 5, which provides removal of contaminated soil above industrial and non-industrial cleanup standards and does not require any containment systems or LUCs, has the greatest long-term effectiveness and permanence.

Reduction of Toxicity, Mobility, or Volume of Contaminants through Treatment:

Alternatives 2 and 3 would not reduce toxicity, mobility, or volume through treatment because treatment is not a component of these alternatives. Alternatives 4 and 5 do not necessarily involve treatment, but would reduce toxicity, mobility, or volume if any of the excavated soil (390 cubic yards under Alternative 4, or 6,300 cubic yards under Alternative 5) must be treated to meet transportation or disposal requirements.

Short-term Effectiveness:

Alternative 2 would have minimal short-term effectiveness concerns. Implementation of LUCs and a monitoring plan would not adversely impact the surrounding community or the environment. Alternative 3 would have more short-term effectiveness concerns than Alternative 2 related to the placement of surface protection within the Building 238 crawl space. Alternative 4 would have more short-term effectiveness concerns than Alternative 3 related to excavation activities within a portion of the crawl space. Alternative 5 would have the greatest short-term effectiveness concerns because it requires the largest volume of excavation within the crawl space and includes excavation outside the building. Alternatives 2, 3, and 4 could be implemented within 1 year and would attain the RAOs upon implementation. Alternative 5 would achieve RAOs at completion within 3 to 4 years.

Implementability:

All of the alternatives are implementable. Alternative 2 would have relatively few difficulties in implementation. Alternative 3 includes the construction of a cover and therefore is more difficult to implement than Alternative 2. Alternative 4 requires the removal of contaminated soil from beneath Building 238 while maintaining normal operations in the building and would be more difficult to implement than Alternative 3. Alternative 5 requires the removal of all soil from beneath Building 238 and all soil outside Building 238 within the OU1 boundary, making it the most difficult alternative to implement. Maintenance of LUCs and groundwater monitoring as part of Alternatives 2, 3, and 4 are equally implementable between the three alternatives.

Cost:

Costs were estimated over a 30-year period and then converted to net present worth. Costs increase from Alternative 1 through Alternative 5, in that order. The total costs (converted to net present worth) for Alternative 5 ($6,150,000) are significantly higher than the costs of Alternative 4 ($1,210,000).

Preferred Alternative

The Navy considered four different cleanup alternatives for OU1. The Navy proposes Alternative 4, Limited Excavation and Disposal with Land Use Controls and Monitoring, to address contaminated soil at OU1. You can learn more about the four alternatives considered for OU1 in the FS which is available in the Information Repositories.

The Navy proposes the following to prevent unacceptable exposure to contaminated soil at OU1:

- Excavate contaminated soil in a portion of the site and dispose soil off yard. The Navy proposes to excavate soil around the drain lines within the crawl space of Building 238 with lead concentrations greater than acceptable levels for construction workers, occupational workers, and hypothetical future recreational users (excavation areas 1 and 2 on Figure 4), conduct confirmation sampling, and backfill the area with clean soil. Soil excavation would be conducted to a depth of 2 to 3 feet bgs in the crawl space with the final depth determined based on the results of confirmation sampling. If necessary to meet disposal requirements, the excavated soil would be treated either off-yard or on-site for transportation to an off-yard treatment, storage, and disposal facility. After excavation and backfill, there would be no access restrictions to the crawl space for construction workers, occupational workers, or hypothetical future recreational users because the soil would not be contaminated by unacceptable levels of lead. Excavation based on lead concentrations also would address antimony-contaminated soil within the crawl space.

Confirmation samples would be collected from the exposed ground surface following excavation to determine whether excavation activities removed the required contamination in the vertical and horizontal directions. Confirmation samples would be analyzed for lead and the results of the samples compared to the selected cleanup levels to make this determination. If the confirmation samples showed that there was still soil with contamination above cleanup levels, the Navy would evaluate whether further excavation was necessary. The Navy would prepare a remedial action document for soil excavation, backfill and treatment and disposal of excavated soil.

Groundwater monitoring would be conducted to verify that lead has not migrated to groundwater at unacceptable levels. Monitoring would be conducted until the Navy can confirm that migration of lead contamination from soil would not result in groundwater concentrations greater than acceptable levels for human health and the environment. A groundwater monitoring plan would be prepared that would provide the requirements for monitoring including the sampling frequency, location of wells, action levels, and monitoring exit strategy.

- Implement LUCs for OU1. LUCs would prevent future residential site use unless additional action is conducted to prevent residential exposure to lead-contaminated soil within the OU1 boundary (i.e., the Site 10 boundary as shown on Figure 4). These LUCs would include maintaining current site features, including Building 238 and asphalt pavement, which prevent exposure to contaminated soil. LUCs would also include maintaining requirements for management of excavated soil as part of any future construction activities at OU1. These LUCs would become applicable to any new owner if the Navy someday transfers the property to another federal agency or non-federal ownership. The Navy would prepare and implement a LUCRD that would include the necessary LUCs, inspection and maintenance requirements, and people and organizations responsible for implementing the LUCs for OU1.

- Conduct five-year site reviews. Every five years, the Navy would be required to review the protectiveness of the cleanup, because contamination would remain in excess of levels that allow for unrestricted use and unlimited exposure. The five-year reviews would need to confirm that the remedy remains protective of human health and the environment.

The preferred alternative was selected over other alternatives because it provides the Navy's preferred balance between long-term effectiveness for current and planned future industrial use of the site (by removing soil contamination that could pose a risk to construction or occupational workers at the site), implementability, and cost. The Navy preferred Alternative 4 over Alternative 5: Excavation and Disposal, which involves complete excavation of all OU1 soil above cleanup levels for hypothetical future residential users. Alternative 5 was not selected because current and future planned use is not likely residential therefore does not warrant the higher costs, and implementability and short-term effectiveness concerns associated with complete excavation. The risk assessment for OU1 shows that lead concentrations in groundwater do not adversely impact human health and the environment, and removal of lead contamination in soil in the crawl space to reduce lead concentrations to acceptable levels for industrial land use would also eliminate potential future migration of soil contaminants to groundwater at levels that could adversely impact human health and the environment.

Based on the information available at this time, the Navy believes that the Preferred Alternative meets the threshold criteria and provides the best balance of tradeoffs among the other alternatives with respect to the balancing and modifying criteria (see page 9). The Navy expects the Preferred Alternative: (1) be protective of human health and the environment; (2) comply with ARARs; (3) be cost-effective; and (4) utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. The Navy may decide to change its Preferred Alternative in response to public comment or new information. After the end of the public comment period on this Proposed Plan, the Navy, with the concurrence of USEPA and after consultation with MEDEP, will document its selected remedy in a Record of Decision (ROD).

GLOSSARY OF TECHNICAL TERMS

Applicable or Relevant and Appropriate Requirements (ARARs): The federal and state environmental rules, regulations, and criteria that must be met by the selected remedy under CERCLA.

Chemicals of Concern: Site-related chemicals that are found to be risk drivers in the baseline risk assessment. Chemicals of concern may pose unacceptable human health or ecological risks.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA): A federal law passed in 1980 and modified in 1986 by the Superfund Amendments and Reauthorization Act (SARA). The act created a special tax that goes into a trust fund to investigate and clean up abandoned or uncontrolled hazardous waste sites.

Exposure Point Concentrations: The exposure point concentrations are estimates of the average chemical concentrations in an environmental medium to which that a receptor may be exposed.

Feasibility Study (FS): A report that summarizes the development and analysis of remedial alternatives.

Five-Year Reviews: Five-year reviews are used to evaluate the implementation and performance of a remedial action in order to determine if the action continues to be protective of human health and the environment. In general, five-year reviews are required whenever a remedial action results in hazardous substances, pollutants, or contaminants remaining on site at concentrations that do not allow for "unlimited use and unrestricted exposure."

Human Health Risk Assessment (HHRA): Evaluation and estimation of current and future potential for adverse human health effects from exposure to chemicals.

Land Use Controls (LUCs): LUCs are legal, administrative, and/or physical measures designed to protect human health from unacceptable risks at sites where residual contamination remains on site. LUCs limit human exposure by restricting activity, use, and access to properties with residual contamination.

Net Present Worth (NPW): A present-worth analysis is used to evaluate costs that occur over different time periods by discounting future costs to a common base year. It represents the amount of money that, if invested in the base year and dispersed as needed, would be sufficient to cover all costs associated with the remedial action over its planned life. Net present worth considers both capital (construction) costs and costs for annual O&M.

Operable Unit (OU): Term for each of a number of separate remedial activities undertaken as part of a Superfund site cleanup. Sites with similar characteristics or in near proximity may also be grouped as one OU.

Organic Compounds: These are naturally occurring or man-made chemicals containing carbon, such as solvents, oils, and pesticides. Some organic compounds may cause cancer; however, their strength as a cancer-causing agent can vary widely. Other organics may not cause cancer but may be toxic. The concentrations that can cause harmful effects can also vary widely.

Preliminary Remediation Goals (PRGs): Chemical-specific goals for site contaminants that when achieved will result in site concentrations that pose an acceptable risk for the targeted receptor.

Record of Decision (ROD): An official document that describes the selected remedial action for a site under CERCLA. The ROD for OU1 will describe the factors that were considered in selecting the remedy and will be issued by the Navy and USEPA following consideration of public comments on the Proposed Plan.

Remedial Action: The actual construction or implementation phase of site cleanup.

Remedial Investigation (RI): An in-depth study designed to gather data needed to determine the nature and extent of contamination at a site; establish site cleanup criteria; identify preliminary alternatives for remedial action; and support technical and cost analyses of alternatives.

Treatment, Storage, and Disposal Facility: A facility that treats, stores, or disposes of hazardous wastes.

The Public's Role in Remedy Selection and Providing Formal Comments

Community input is integral to the remedy selection process. The Navy and USEPA will consider all significant comments received on the Proposed Plan in selecting the remedial action before signing the ROD for OU1 and MEDEP will consider comments before providing a concurrence letter for the ROD. The public is encouraged to participate in the decision-making process by reviewing documents, commenting on this Proposed Plan, and attending the Informational Open House and Public Hearing. To make a formal comment, you only need to speak when formal comments are being recorded at the Public Hearing on June 30, 2010, or submit a written comment(s) during the comment period.

Federal regulations require the Navy to distinguish between "formal" and "informal" comments. Although the Navy considers your comments throughout the site investigation and cleanup, the Navy is required to respond only to formal comments in writing. The Navy will not respond to your formal comments during the Public Hearing.

The Navy will review the transcript of all formal comments received at the Public Hearing and all written comments received during the public comment period before making a final remedial decision. The Navy will then prepare a written response to the formal written and oral comments received. Your formal comment will become part of the official public record. The transcript of comments and the Navy's written responses will be issued in the Responsiveness Summary of the ROD.

Navy and USEPA personnel will be available throughout the Informational Open House to discuss any questions or informal comments you have about the site and cleanup proposal.

Availability of Documents for Portsmouth Naval Shipyard

This Proposed Plan as well as documents used to support the development of the Proposed Plan are available in the Portsmouth Naval Shipyard Information Repositories located at Kittery Town Hall and Portsmouth Public Library.

Kittery Town Hall
200 Rogers Road, Ext.
Kittery, Maine 03904
Telephone: (207) 439-1633

Hours:
Monday – Friday: 9:00 – 5:00

Portsmouth Public Library
175 Parrott Avenue
Portsmouth, New Hampshire 03801
Telephone: (603) 427-1540

Hours:

Monday – Thursday:	9:00 – 9:00
Friday:	9:00 – 5:30
Saturday:	9:00 – 5:00
Sunday:	9:00 – 1:00

Further detail on the background of PNS and OU1 is provided in the OU1 RI and OU1 FS Reports, which are available for review at the Information Repositories.

Use This Space to Write Your Comments

Your input on the Proposed Plan for contamination at OU1 Portsmouth Naval Shipyard is important to the Navy, USEPA, and MEDEP. Comments provided by the public are valuable in helping to select the remedy for this site.

You may use the space below to write your comments, then fold and mail. Comments must be postmarked by July 16, 2010. Comments can be submitted via mail or fax and should be sent to the following address:

Ms. Danna Eddy
Public Affairs Office (Code 100PAO)
Portsmouth Naval Shipyard
Portsmouth, NH 03804-5000

Fax: (207) 438-1266

Name:
Address:
City:
State: Zip Code:
Telephone

FOLD HERE

PLACE
STAMP
HERE

Ms. Danna Eddy
Public Affairs Office (Code 100PAO)
Portsmouth Naval Shipyard
Portsmouth, NH 03804-5000